

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) A recording apparatus for recording video data to a record medium, comprising:

encoding means for encoding video data and audio data in a group structure of a plurality of frames by performing a compression-encoding process which is a combination of an inter-frame predictive encoding process and a motion compensative process;

transforming means for transforming the data structure of encoded video data that is output from said encoding means into a file structure; and

recording means for recording said transformed encoded video data to a record medium,

wherein said transforming means transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording means records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium, that is separate from the location on which the audio data is recorded.

2. (Currently Amended) A recording apparatus for recording video data to a rewritable optical disc, comprising:

encoding means for encoding video data and audio data by performing a compression-encoding process;

transforming means for transforming the data structure of encoded video data that is output from said encoding means into a file structure; and

recording means for recording said transformed encoded data to an optical disc, wherein said transforming means transforms the data structure of said encoded video data into said file structure which contains a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording means records said transformed encoded video data so that the encoded video data of said second data unit is recorded on a successive location of said record medium, that is separate from the location on which the audio data is recorded.

3. (Original) The recording apparatus as set forth in claim 1, wherein the compression-encoding process is MPEG, wherein the group structure is GOP structure, and wherein data of which a sequence header is added to each GOP is matched with the first data unit.

4. (Canceled)

5. (Currently Amended) A recording apparatus for recording video data and audio data to a record medium, comprising:

video encoding means for encoding video data in a group structure of a plurality of frames by performing a compression-encoding process which is a combination of an inter-frame predictive encoding process and a motion compensative process;

audio output means for outputting compression-encoded or non-compressed audio data;

means for transforming the data structure of encoded video data that is output from said video encoding means and audio data that is output from said audio output means into a file structure ~~and multiplexing the encoded video data and the audio data having the file structure;~~ and

recording means for recording the transformed encoded video data and audio data ~~multiplexed data~~ to a record medium,

wherein said transforming means transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, ~~and a second video data unit which consists of a plurality of said first video data units,~~ and second audio data unit which consists of a plurality of said first audio data units,

wherein said recording means records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are the encoded video data of said second data unit is recorded on a different successive location of said record medium respectively.

6. (Currently Amended) A recording apparatus for recording video data and audio data to a rewritable optical disc, comprising:

video encoding means for encoding video data in a group structure of a plurality of frames by performing a compression-encoding process which is a combination of an inter-frame predictive encoding process and a motion compensative process;

audio output means for outputting compression-encoded or non-compressed audio data;

means for transforming the data structure of encoded video data that is output from said video encoding means and audio data that is output from said audio output means into a file structure ~~and multiplexing the encoded video data and the audio data having the file structure;~~ and

recording means for recording ~~multiplexed~~ the transformed encoded video data and audio data to an optical disc,

wherein said transforming means transforms the data structure of said encoded video data and audio data into said file structure which contains a ~~first~~ first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, ~~and~~ a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units,

wherein said recording means records said transformed encoded video data and said audio data to said optical disc so that said second video data unit and said second audio unit

~~are the encoded video data of said second data unit~~ is recorded on a different successive location of said ~~record medium~~ optical disc.

7. (Previously Presented) The recording apparatus as set forth in claim 5, wherein the duration of the encoded video data of the second data unit is the same as the duration of the encoded audio data of the second data unit in the multiplexed data.

8. (Previously Presented) The recording apparatus as set forth in claim 5, wherein the encoded video data of the second data unit and the encoded audio data of the second data unit are alternately placed in the multiplexed data, each of the encoded video data of the second data unit and the encoded audio data of the second data unit being matched with the successive record length.

9. (Previously Presented) The recording apparatus as set forth in claim 5, wherein the audio data is compression-encoded corresponding to ATRAC, and wherein the first data unit of the file structure contains at least one sound unit of ATRAC.

10. (Previously Presented) The recording apparatus as set forth in claim 1, wherein the file structure further includes a data portion containing management information.

11. (Previously Presented) The recoding apparatus as set forth in claim 1,

wherein the file structure further includes a data portion containing management information, and

wherein the data portion contains size information of the first data unit and position information of the second data unit.

12. (Currently Amended) A recording method for recording video data to a record medium, comprising the steps of:

encoding video data in a group structure of a plurality of frames by performing a compression-encoding process which is a combination of an inter-frame predictive encoding process and a motion compensative process;

transforming the data structure of encoded video data into a file structure; and recording said transformed encoded video data and audio data to a record medium,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, and a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units.

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit ~~are the encoded video data of said second data unit~~ is recorded on a different successive location of said record medium respectively.

13. (Currently Amended) A recording method for recording video data to a rewritable optical disc, comprising the steps of:

encoding video data by performing a compression-encoding process;

transforming the data structure of encoded video data into a file structure; and

recording the transformed encoded video data to an optical disc,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units, ~~a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and~~

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are recorded on a different successive location ~~so that the encoded video data of said second data unit is recorded on a successive location of said record medium.~~

14. (Currently Amended) A recording method for recording audio data to a rewritable optical disc, comprising the steps of:

transforming the data structure of audio data or encoded audio data into a file structure; and

recording the transformed encoded video data to the optical disc,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units, a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are recorded on a different successive location ~~so that the encoded video data of said second data unit is recorded on a successive location of said record medium.~~

15. (Currently Amended). A recording method for recording video data and audio data to a record medium, comprising the steps of:

encoding video data in a group structure of a plurality of frames by performing a compression-encoding process which is a combination of an inter-frame predictive encoding process and a motion compensative process;

outputting compression-encoded or non-compressed audio data;

transforming the data structure of encoded video data and audio data into a file structure and ~~multiplexing the encoded video data and the audio data having the file structure;~~
and

recording said transformed ~~multiplexed~~ video data and audio data to a record medium,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units, a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are recorded on a different successive location so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

16. (Currently Amended) A recording method for recording video data and audio data to a rewritable optical disc, comprising the steps of:

encoding video data in a group structure of a plurality of frames by performing a compression-encoding process which is a combination of an inter-frame predictive encoding process and a motion compensative process;

outputting compression-encoded or non-compressed audio data;

transforming the data structure of encoded video data and audio data into a file structure and multiplexing the encoded video data and the audio data having the file structure; and

recording multiplexed data to an optical disc,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units, a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are recorded on a different successive location so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

17. (Currently Amended) A record medium on which a program for recording video data to a record medium has been recorded, the program causing a computer to perform the steps of:

encoding video data in a group structure of a plurality of frames by performing a compression-encoding process which is a combination of an inter-frame predictive encoding process and a motion compensative process;

transforming the data structure of encoded video data into a file structure; and
recording said transformed encoded video data to a record medium,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units, a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are recorded on a different successive location so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

18. (Currently Amended) A record medium on which a program for recording video data to a rewritable optical disc has been recorded, the program causing a computer to perform the steps of:

encoding video data by performing a compression-encoding process;

transforming the data structure of encoded video data into a file structure; and

recording said transformed encoded video data to an optical disc,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units, a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are recorded on a different successive location so that the encoded video data of said second data unit is recorded on a successive location of said record medium.

19. (Currently Amended) A record medium on which a program for recording audio data to a rewritable optical disc has been recorded, the program causing a computer to perform the steps of:

transforming the data structure of audio data or encoded audio data into a file structure; and

recording said transformed encoded video data to the optical disc,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units, a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are recorded on a different successive location ~~so that the encoded video data of said second data unit is recorded on a successive location of said record medium.~~

20. (Currently Amended) A record medium on which a program for recording video data and audio data to a record medium has been recorded, the program causing a computer to perform the steps of:

encoding video data in a group structure of a plurality of frames by performing a compression-encoding process which is a combination of an inter-frame predictive encoding process and a motion compensative process;

outputting compression-encoded or non-compressed audio data;

transforming the data structure of encoded video data and audio data into a file structure and ~~multiplexing the encoded video data and the audio data having the file structure;~~

and

recording the transformed encoded video and audio data ~~multiplexed data~~ to a record medium,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units, a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are recorded on a different successive location ~~so that the encoded video data of said second data unit is recorded on a successive location of said record medium.~~

21. (Currently Amended) A record medium on which a program for recording video data and audio data to a rewritable optical disc has been recorded, the program causing a computer to perform the steps of:

encoding video data in a group structure of a plurality of frames by performing a compression-encoding process which is a combination of an inter-frame predictive encoding process and a motion compensative process;

outputting compression-encoded or non-compressed audio data;

transforming the data structure of encoded video data and audio data into a file structure and ~~multiplexing the encoded video data and the audio data having the file structure;~~
and

recording transformed encoded video and audio data ~~multiplexed data~~ to an optical disc,

wherein said transforming step transforms the data structure of said encoded video data and audio data into said file structure which contains a first video data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, a first audio data unit which corresponds to a predetermined size of said audio data, a second video data unit which consists of a plurality of said first video data units, and a second audio data unit which consists of a plurality of said first audio data units, a first data unit which corresponds to a predetermined number of frames of said encoded video data outputted from said encoding means, and a second data unit which consists of a plurality of said first data units, and

wherein said recording step records said transformed encoded video data and said audio data to said record medium so that said second video data unit and said second audio data unit are recorded on a different successive location ~~so that the encoded video data of said second data unit is recorded on a successive location of said record medium.~~

22. (New) The recording apparatus as set forth in claim 5,
wherein said first video data unit and said first audio data unit correspond to the
encoding unit which can be decoded respectively.

23. (New) The recording apparatus as set forth in claim 5,
wherein said transforming means transforms the data structure of said encoded
video data and said audio data into said file structure which contains said first video unit, said
first audio data unit, a second video data unit, a second video data unit, said second audio data
unit, and a resource data which includes at least the size of said first video data unit and said first
audio data unit; and
said recording means records said resource data to said record medium.

24. (New) The recording apparatus as set forth in claim 5,
wherein said recording means records said transformed encoded video data and
said audio data to said record medium so that said second video data unit and said second audio
data unit are recorded on a successive record length of said record medium respectively.

25. (New) The recording apparatus of claim 5,
wherein said recording means records said transformed encoded video data and
said audio data to said record medium so that said second video unit and said second audio unit
are placed in such a manner that said second video data unit is adjacent to said second audio data
unit corresponding thereto.